

### **WHAT IS CLAIMED IS:**

1. An air compressor, comprising a main body including:

an air storage device;

an actuating device connected to the air storage device to produce a

5 compressed air and to push the compressed air into the air storage device;

a reduction device connected to the actuating device to produce a  
predetermined torque to operate the actuating device;

a motor connected to the reduction device to operate the reduction  
device;

10 a control circuit connected to the motor and the air storage device to  
detect a pressure contained in the air storage device and to control operation of  
the motor according to the detected pressure of the air storage device; and

a direct current air supply connected to the control circuit to supply  
an electric power to the control circuit.

15 2. The air compressor in accordance with claim 1, further comprising  
a housing, wherein the main body is mounted in the housing.

3. The air compressor in accordance with claim 2, wherein the  
housing includes a base for supporting the main body.

4. The air compressor in accordance with claim 3, wherein the  
20 housing further includes a cover pivotally mounted on the base to encompass  
the main body.

5. The air compressor in accordance with claim 3, further comprising a handle mounted on the base of the housing.

6. The air compressor in accordance with claim 1, wherein the air compressor is portable.

5           7. The air compressor in accordance with claim 1, wherein the motor is a miniature motor.

8. The air compressor in accordance with claim 1, wherein the control circuit is an electronic control circuit.

9. The air compressor in accordance with claim 1, wherein the  
10 reduction device is mounted on the motor and includes a drive gear mounted on and rotated by a rotation shaft of the motor and a driven gear meshing with the drive gear.

10. The air compressor in accordance with claim 9, wherein the driven gear of the reduction device has a tooth number greater than that of the  
15 drive gear of the reduction device.

11. The air compressor in accordance with claim 9, wherein the actuating device is mounted on the reduction device and includes a crank shaft mounted on and driven by the driven gear of the reduction device and a piston mounted on and driven by the crank shaft.

20           12. The air compressor in accordance with claim 11, wherein the air storage device is connected to the piston.

13. The air compressor in accordance with claim 11, wherein the main body further includes a pressure regulating device mounted between an air inlet pipe of the main body and the piston to regulate the pressure contained in the air storage device.

5           14. The air compressor in accordance with claim 1, wherein the control circuit includes a first pressure detection unit to detect the pressure contained in the air storage device.

15           15. The air compressor in accordance with claim 14, wherein the control circuit further includes a second pressure detection unit to doubly  
10 detect the pressure contained in the air storage device.

16. The air compressor in accordance with claim 1, wherein the control circuit locks the air compressor automatically when the pressure contained in the air storage device is greater than a predetermined value, so that the air compressor stops operating.

15           17. The air compressor in accordance with claim 1, wherein the control circuit further includes a voltage detection unit to detect the electric power of the direct current air supply.

18. The air compressor in accordance with claim 1, wherein the air storage device is connected to an air outlet pipe to introduce the compressed air  
20 outward.